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REGIONAL CONFERENCE ON THE ANALYSIS OF THE UNBALANCED
MIXED MODEL(U) FLORIDA UNIV GAINESVILLE DEPT OF
STATISTICS A I KHURI ET AL. 31 DEC 87 N00014-87-G-0090

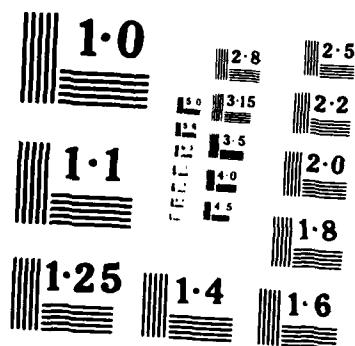
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OFFICE OF NAVAL RESEARCH

PERFORMANCE REPORT

for

6 January 1987 through 31 December 1987

for

GRANT: N00014-87-G-0090

ACCT. No.: 4910162346416

PROJECT TITLE

"Regional Conference on the Analysis of the Unbalanced Mixed Model"

PRINCIPAL INVESTIGATOR

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Report Concerning the Conference on the Analysis of the Unbalanced Mixed Model,

Held at The University of Florida, April 6-10, 1987

Purpose of the Conference

The main objective of the conference was to bring together leading statisticians who have done significant research work in the area of variance components and linear models in general. Of particular interest was the analysis concerning the unbalanced mixed linear model. This is a rather difficult area in statistics that has been the subject of investigation by many researchers. Unfortunately, however, there is no general consensus among research workers on the most efficient method to analyze data from an unbalanced experiment. The convening of the conference was, therefore, a necessary step in the process of solving this complicated problem. The conference provided a suitable platform for an exchange of ideas and interaction among the participants.

Proceedings

Thirteen keynote speakers were invited to present research papers at the conference. These speakers are internationally renowned with impressive research records in the areas covered by the conference. Ten of the speakers are from the United States, one from Canada, and two from Europe. the following is a list of the speakers (in alphabetical order) and the titles of their talks:

<u>Speaker</u>	<u>Title of Talk</u>	<u>University</u>	<u>Country</u>
Burdick, R.K.	The Present Status of Confidence Interval Estimation on Variance Components in Balanced and Unbalanced Random Models.	Arizona State University	U.S.A.
Harville, D.A.	Prediction-Interval Procedures and (Fixed Effects) Confidence-Interval Procedures for Mixed Linear Models.	Iowa State University	U.S.A.

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Henderson, C.R.	The Use of Equivalent linear Models in Mixed Model Estimation and Prediction.	Cornell University	U.S.A.
Hocking, R.R.	Estimation of Variance Components in Unbalanced Mixed Models.	Texas A&M University	U.S.A.
Kleffe, J.	On the Role of MINQUE in Testing of Hypotheses Under Mixed Linear Models.	Akademic der Wissenschaften der DDR	Germany
Kleffe, J.	Practical Computation of MINQUE Estimators in Mixed Model Analysis of Variance.	Akademic der Wissenschaften der DDR	Germany
LaMotte, L.R.	Confidence Intervals and Tests on the Variance Ratio in Random Models With Two Variance Components.	University of Houston	U.S.A.
Rao, J.N.K.	Robust Tests and Confidence Intervals for Functions of Variance Components in the Nested Error Regression Model.	Carleton University	Canada
Rao, P.S.R.S.	Estimation for Variance Components Models; Small and Large Sample Properties.	University of Rochester	U.S.A.
Searle, S.R.	Mixed Models and Unbalanced Data: Wherefrom and whereto?	Cornell University	U.S.A.
Seely, J.F.	When Can Random Effects be Treated as Fixed Effects for Computing a Test Statistic for a linear Hypothesis?	Oregon State University	U.S.A.
Tan, W.Y.	Harmonic Mean Approach to Unbalanced Random and Mixed Effects Models Under Heteroscedastic Variances.	Memphis State University	U.S.A.

- Verdooren, L.R. Tests for Ratios of Variance Components in University of Wageningen Neth.
Unbalanced Nested Designs
- Verdooren, L.R. Nonnegative Estimation of Variance University of Wageningen Neth.
Components.
- Zhao, L.C. Multivariate Components of Variance Models University of Pittsburgh U.S.A.
for the Unbalanced Case.

All the papers presented at the conference will appear in a Special Issue of Communications in Statistics, Part A sometime in 1988. A special editorial board was set up to be in charge of assigning referees to review the manuscripts. The board consists of the Principal Investigator (André I. Khuri), Lyle D. Broemeling, and Ramon C. Littell.

In addition to the speakers, a total of 12 guests were invited to attend the conference. These guests are well known research statisticians who have also done significant work in linear models and experimental design. Their active participation in the discussions following the talks was very stimulating.

Organization of the Conference

The conference was held at the J. Wayne Reitz Union of the University of Florida, during the period April 6-10, 1987. It began on Monday (April 6) with welcoming remarks by the Principal Investigator (André I. Khuri), Dr. Charles F. Sidman, the dean of the College of Liberal Arts and Sciences, and by Professor Richard L. Scheaffer, the head of the Department of Statistics. A reception on Sunday (April 5) and a dinner on Tuesday (April 7) were organized by the Department of Statistics in addition to a social on Thursday (April 9). Enclosed is the program for the conference.

The sessions were organized with each speaker given 75 minutes for paper presentation. Four talks were given daily, two in the morning and two in the afternoon, except for Wednesday and Friday. At noon on Wednesday (April 8), following the morning sessions, the conference participants were

taken on a sightseeing tour of the nearby Cedar Key, Florida. The conference ended at noon on Friday, April 10. The last morning session was devoted to open discussions on directions for future research.

In addition to the speakers and the invited guests there were other participants who were interested in attending the talks. The number of people attending each session ranged from 50 to 75. Enclosed is a list of all conference participants and their addresses.

Conference Budget

Travel expenses, including lodging, board, and transportation, were paid for all conference speakers. The invited guests were mainly paid for their transportations to and from Gainesville. The following is an itemized list of all of the expenses:

	<u>Salary</u>	<u>OPS</u>	<u>Expense</u>	<u>Total</u>
Released	4,713.00	781.50	24,064.00	29,558.50
P. Investigators Salaries	- 3,771.54			
Secretary		- 816.70		
Postage			-133.76	
Photos			-123.00	
Copying			- 22.57	
Misc. Supplies			-22.37	
Travel Expenses ¹			- 17,054.33	
Available Balance	941.46	-35.20	6,707.97	7,614.23

¹This is the sum of the four totals given on page 5.

Details of Travel Expenses

<u>Speaker</u>	<u>Paid</u>	<u>Invited Guest</u>	<u>Paid</u>
Burdick	904.50	Chaubey	239.38
Harville	913.70	Giesbrecht	431.00
Henderson	865.00	Low	218.00
Hoeking	598.53	Kemphorne	647.90
Kleffe	1,936.95	Jeyaratnam	306.80
Rao, P.S.R.S.	533.50	Swallow	431.00
Rao, J.	663.11	Sinha	279.00
Searle	641.50	Sen	443.00
Seely	817.90	Ghosh	419.00
Tan	844.00	Wong	379.00
Verdooren	1,686.73	Turner	354.83
Zhao	685.50	Lange	400.00
LaMotte	<u>722.00</u>		
Total	<u>11,812.92</u>	Total	<u>4,548.91</u>

<u>Participant</u>	<u>Paid</u>
Murray	315.00
Panchapakesan	<u>201.60</u>
Total	<u>516.60</u>

<u>Misc. Travel</u>	<u>Paid</u>
Rental Vans	155.90
Khuri - gas	10.00
Littell - gas	<u>10.00</u>
Total	<u>175.90</u>

Acknowledgement

We would like to express our deep appreciation and thanks to the Office of Naval Research for sponsoring this conference. Everyone was pleased with the arrangements. We believe that the conference was a great success. Thanks to the ONR, the conference has made it possible to stimulate new research initiatives in the area of the unbalanced mixed model.

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